

bond's market value caused by an equal change in interest rates. The amount of bond being hedged will vary monthly to compensate for the differences in swap and bond valuation drivers.

The goal is to establish the hedge such that an interest rate change has a similar dollar impact on the swap MTM value and the bond market value. This is best expressed as the dollar value per basis point. Sour hedging examples are summarized in the next chart. The detailed calculations are in the exhibit titled "Compensatory Ratio Analysis".

	Value of 1 BP	Value of 1 BP
	At Initial Date	With 12 Months Remaining
Exhibit 1		
4 year Swap	\$36,125	\$ 9,730
4 year Bond	\$36,185	\$ 9,734
Exhibit 2		
5 year Swap	\$46,546	\$ 9,726
7 year Bond	\$65,181	\$27,313
Exhibit 3	•	
6 year Swap	\$56,887	\$ 9,726
8 year Bond	\$64,013	\$23,052
^		

Instein

10 year Bond

Exhibit 4 7 year Swap \$54,921 \$ 9,653

\$71,574

Hedge Ratio Bond amount being hedged as a percentage of the swap notional amount):

\$36,005

	At Initial Date	With 12 Months Remaining
Exhibit 1	99.8% (\$36,125 / \$36,185)	100.0% (\$9,730 / \$9,734)
Exhibit 2	71.4% (\$46,546 / \$65,181)	35.6% (\$27,313 / \$9,726)
Exhibit 3	88.9% (\$56,887 / \$64,013)	42.2% (\$9,726 / \$23,052)
Exhibit 4	76.7% (\$54,921 / \$71,574)	26.8% (\$9,653 / \$36,005)

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The hedge ratios are logical. An interest rate change has a greater dollar impact on a longer maturity bond. So, a lesser bond notional amount can be hedged by a given swap amount when the bond maturity is longer.

At the "initial date", we can use the hedge ratios to determine the bond notional being hedged. For example, a \$100 million swap in Exhibit 3 would hedge \$88.9 million bond notional. This should generate a "perfect" matching of swap and bond value volatility.

However, note the changing relationship when there is a maturity mismatch. Exhibit 2 shows an initially moderate mismatch (7 year bond versus 5 year swap gives a maturity ratio of 1.4 to 1). By the end of year 4, the maturity mismatch is wide (3 year bond versus a 1 year swap gives a maturity ratio of 3 to 1). We therefore need to vary the percentage hedging relationship between the bond and swap to maintain similar amounts

EXHIBIT I DETALS

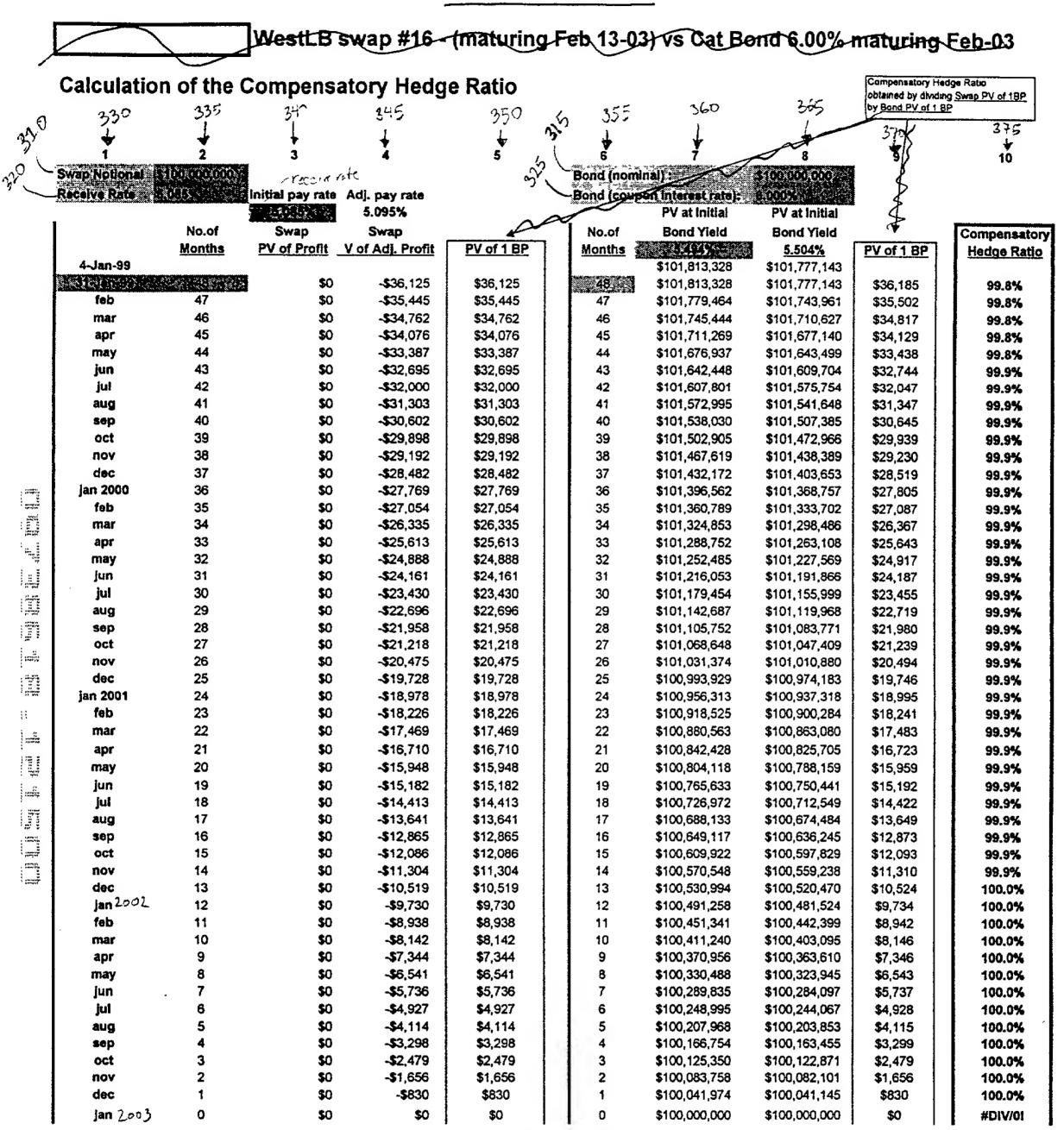


FIG. 3

54,516 -2,099,155 -1,281,692 -313,783 -707,924 -304,141 -761,811 -953,259 -411,502 84,538 -201,328 -374,454 994,454 994,454 595,100 537,645 234,395

Bond Value Mithix Change

FIG 4

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Citibank swap#20 - maturing 6/4/04 vs Cat Bond 9.00% maturing 4/45/06 Calculation of the Compensatory Hedge Ratio Obtained by dividing Swap/PV of 18P by Bond PV of 18P Swap Notional \$100,000,000 a Bond (nominal): \$100,000,000 Receive Rate 50 50 50 Initial pay rate Adj. pay rate Bond (coupon) interest rate) - 9 ton 4 1 1 515% 5.16% PV at Initial PV at Initial No.of Swap Swap No.of **Bond Yield Bond Yield** Compensatory PV of Profit V of Adj. Profit **Months** PV of 1 BP **Months** 5.720% PV of 1 BP **Hedge Ratio** 4-Jan-99 \$119,312,749 \$119,247,568 **\$**0 -\$46,546 \$46,546 \$119,312,749 \$119,247,568 \$65,181 71.4% 63 feb \$0 -\$45,913 \$45,913 85 \$119,130,478 \$119,065,981 \$64,497 71.2% 62 \$0 mar -\$45,276 \$45,276 84 \$118,947,341 \$118,883,529 \$63,812 71.0% 61 \$0 apr -\$44,638 \$44,638 83 \$118,763,332 \$118,700,207 \$63,125 70.7% 60 may \$0 -\$43,996 \$43,996 82 \$118,578,448 \$118,516,012 \$62,436 70.5% june 59 \$0 -\$43,351 \$43,351 81 \$118,392,683 \$118,330,938 \$61,745 70.2% 58 \$0 july -\$42,704 \$42,704 80 \$118,206,035 \$118,144,982 \$61,053 69.9% 57 \$0 -\$42,054 aug \$42,054 79 \$118,018,499 \$117,958,140 \$60,359 69.7% 56 \$0 sep -\$41,401 \$41,401 78 \$117,830,070 \$117,770,407 \$59,663 69.4% 55 \$0 oct -\$40,746 \$40,746 77 \$117,640,745 \$117,581,779 \$58,966 69.1% 54 \$0 -\$40,088 nov \$40,088 76 \$117,450,519 \$117,392,253 \$58,266 68.8% 53 \$0 dec -\$39,426 \$39,426 75 \$117,259,388 \$117,201,822 \$57,565 68.5% jan 2000 52 \$0 -\$38,762 \$38,762 \$117,067,347 74 \$117,010,484 \$56,863 68.2% feb 51 \$0 -\$38,095 \$38,095 73 \$116,874,392 \$116,818,234 \$56,158 67.8% 50 \$0 mar -\$37,426 \$37,426 72 \$116,680,520 \$116,625,068 \$55,452 67.5% 49 \$0 -\$36,753 \$36,753 71 \$116,485,724 \$116,430,981 \$54,744 67.1% 48 \$0 may -\$36,077 \$36,077 70 \$116,290,002 \$116,235,968 \$54,034 66.8% june 47 \$0 -\$35,399 \$35,399 \$116,093,349 69 \$116,040,026 \$53,322 66.4% 46 \$0 july -\$34,718 \$34,718 68 \$115,895,760 \$115,843,151 \$52,609 66.0% 45 \$0 aug -\$34,033 \$34,033 67 \$115,697,230 \$115,645,336 \$51,894 65.6% sep 44 \$0 -\$33,346 \$33,346 \$115,497,756 66 \$115,446,579 \$51,177 65.2% oct 43 \$0 -\$32,656 \$32,656 65 \$115,297,333 \$115,246,874 \$50,459 64.7% nov 42 \$0 -\$31,963 \$31,963 64 \$115,095,956 \$115,046,218 \$49,739 64.3% dec 41 \$0 -\$31,267 \$31,267 63 \$114,893,621 \$114,844,605 \$49,016 63.8% jan 2001 40 \$0 -\$30,568 \$30,568 62 \$114,690,323 \$114,642,031 \$48,293 63.3% feb 39 \$0 -\$29,866 \$29,866 61 \$114,486,058 \$114,438,491 \$47,567 62.8% 38 \$0 -\$29,161 \$29,161 mar 60 \$114,280,821 \$114,233,981 \$46,840 62.3% 37 apr \$0 -\$28,452 \$28,452 59 \$114,074,607 \$114,028,497 \$46,111 61.7% 36 \$0 may -\$27,741 \$27,741 58 \$113,867,412 \$113,822,032 \$45,380 61.1% june 35 \$0 -\$27,027 \$27,027 57 \$113,659,231 \$113,614,584 \$44,647 60.5% july 34 \$0 -\$26,310 \$26,310 56 \$113,450,060 \$113,406,147 \$43,913 59.9% 33 \$0 aug -\$25,589 \$25,589 55 \$113,239,893 \$113,196,716 \$43,177 59.3% 32 \$0 sep -\$24,866 \$24,866 54 \$113,028,726 \$112,986,287 \$42,439 58.6% oct 31 \$0 -\$24,139 \$24,139 53 \$112,816,555 \$112,774,855 \$41,699 57.9% 30 \$0 nov -\$23,410 \$23,410 52 \$112,603,373 \$112,562,415 \$40,958 57.2% 29 \$0 dec -\$22,677 \$22,677 51 \$112,389,178 \$112,348,963 \$40,215 56.4% jan 2002 28 \$0 -\$21,941 \$21,941 50 \$112,173,963 \$112,134,493 \$39,470 55.6% \$21,202 \$111,957,724 \$111,919,001 \$38,723 54.8% mar 26 **\$**0 -\$20,460 \$20,460 48 \$111,740,456 \$111,702,481 \$37,975 53.9% 25 \$0 -\$19,714 \$19,714 47 \$111,484,930 apr \$111,522,155 \$37,225 53.0% 24 **\$**0 -\$18,965 may \$18,965 46 \$111,302,814 \$111,266,341 \$36,473 52.0% june 23 \$0 -\$18,213 \$18,213 \$111,082,430 45 \$111,046,711 \$35,719 51.0% july 22 \$0 -\$17,458 \$17,458 44 \$110,860,997 \$110,826,033 **\$34,964** 49.9% 21 \$0 aug -\$16,700 \$16,700 43 \$110,638,511 \$110,604,304 \$34,207 48.8% 20 \$0 sep -\$15,938 \$15,938 42 \$110,414,966 \$110,381,518 \$33,448 47.7% 19 oct \$0 -\$15,173 \$15,173 41 \$110,190,357 \$110,157,670 \$32,687 46.4% 18 **\$**0 -\$14,405 nov \$14,405 40 \$109,964,679 \$109,932,755 \$31,925 45.1% dec 17 \$0 -\$13,634 \$13,634 39 \$109,737,928 \$109,706,768 \$31,160 43.8% jan 2003 16 \$0 -\$12,859 \$12,859 38 \$109,510,098 \$109,479,703 \$30,394 42.3% 15 **\$**0 feb -\$12,081 \$12,081 37 \$109,281,183 \$109,251,557 \$29,627 40.8% 14 \$0 -\$11,299 mar \$11,299 36 \$109,051,180 \$109,022,322 \$28,857 39.2% 13 \$0 -\$10,515 \$10,515 apr 35 \$108,820,081 \$108,791,995 \$28,086 37.4% 12 **\$**0 -\$9,726 \$9,726 \$108,587,884 may 34 \$108,560,571 \$27,313 35.6% june 11 \$0 -\$8,935 \$8,935 \$108,354,581 33 \$108,328,043 \$26,538 33.7% july 10 \$0 -\$8,140 \$8,140 32 \$108,120,168 \$108,094,406 \$25,762 31.6% 9 **\$**0 -\$7,341 \$7,341 31 \$107,884,640 aug \$107,859,656 \$24,984 29.4% \$0 8 -\$6,540 \$6,540 sep 30 \$107,647,991 \$107,623,787 \$24,204 27.0% \$0 oct -\$5,734 \$5,734 29 \$107,410,216 \$107,386,794 \$23,422 24.5% **\$**0 NOV -\$4,926 \$4,926 \$107,171,310 28 \$107,148,671 \$22,639 21.8% dec **\$**0 -\$4,114 \$4,114 27 \$106,931,267 \$106,909,413 \$21,853 18.8% jan 2004 \$0 -\$3,298 \$3,298 26 \$106,690,081 \$106,669,015 \$21,067 15.7% feb \$0 -\$2,479 \$2,479 25 \$106,447,748 \$106,427,470 \$20,278 12.2% \$0 mar -\$1,656 \$1,656 24 \$106,204,262 \$106,184,774 \$19,487 8.5% **\$**0 -\$830 apr \$830 23 \$105,959,617 \$105,940,922 \$18,695 4.4% **\$**0 may \$0 \$0 22 0.0% \$105,713,808 \$105,695,907 \$17,901

p#20 - mattring 6/4/04 vs Cat Bond 9.00% maturing 4/15/06 of the Correlation between Swap and Ratio Hedge Bond

	Bond Value	Many Crains	\$93,236	-\$3,937,361	\$367,259	-\$299,915	-\$2,271,255	-\$664,397	-\$1,420,017	-\$561,230	\$1,163,790	\$387,414	-\$540,793	-\$1,479,432	-\$2,039,216	\$645,187	\$652,614	-\$541,433	-\$1,066,100	\$2,058,742	\$330,892	\$1,286,869	\$837,482	\$224,176		
	Amort of	Liemen	0.188%	0 189%	0.190%	0.191%	0 192%	0.193%	0.194%	0 195%	0 195%	0 196%	0 197%	0.198%	0 199%	0.200%	0 201%	0.202%	0.203%	0 204%	0.205%	0.206%	0.207%	0.208%		
	Bond Price	# Yield Unchanged 120 155%	119 967%	119 778%	119 588%	119 397%	119.205%	119 012%	118 819%	118 824%	118 429%	118 232%	116 035%	117 837%	117 638%	117,438%	117.237%	117 035%	116 832%	116 628%	116 423%	116 218%	116 011%	115.803%		
		Swap Yield III	5 5956%	6.2136%	6.1606%	6.2158%	6.6025%	6.7658%	7 0291%	7.1466%	6.9533%	6.8987%	7.0141%	7 3108%	7.7296%	7 6280%	7.5233%	7 6579%	7 9062%	7 5073%	7 4641%	7 2196%	7 0863%	7.0396%		
	Constant Diff.	Libor vs CP Swap 0 1000%	0 1000%	0.1000%	0.1000%	0.1000%	0 1000%	0 1000%	0 1000%	0 1000%	0 1000%	0 1000%	0 1000%	0.1000%	0 1000%	0 1000%	0 1000%	0 1000%	0 1000%	0 1000%	0.1000%	0 1000%	0 1000%	0 1000%		
	Constant	Yield Differential Lib	0.4008%	0.4008%	7,000	740067	0.4008%	0.4008%	0.4008%	? \$	0.4008%	0.4008%	0.4008%	? 5	0.4008%	X800F0	7,000	0.4008%	7,000	0.4008%	0.4008%	0.4008%	0.4008%	0.4008%	2004.0	
7	Actual Libor	Swap Yield	2.300.5 2.000.0	2.000 A	2.315.0%	3.0000 A	3.00 S	6.30173 6.48508	S. Seatt a	W. 2021.0	6.645GW	6.656578 6.65704	## ##CO	7.7.203	K010.7	1.4200 N	7.3216.7	7 1674	7 ADEAK	7 20854	7 18336	F. 1000 %	20 10 10 10 10 10 10 10 10 10 10 10 10 10	6.7000X	0.7300%	
	Computed	Bond Value	# CC1 UZ1	400.02L	K #CR CLI	W111.011	115.620%	479.13.11 400.000	112.000%	110 400%	109.710%	1106/97	40/8 OLL	4251 UTT	106 454%	106.216%	K100.001	4511 VDI	4.600 901	4080 CD1	100.855%	48/0 /01	4001 BUT	108./81%	106.308%	
	No.04	Months	10	8 :	2 ;	3 :	3 8	2 3 3	ic :	8	2	82	!	9 ;	\$ 1	7	r i	2 3	ς ;	2 1	50 Y	3 :	29	8	જ	
	Monthly Change	Adj. MTM	_	\$100,130	-\$2,735,407	\$388,471	-\$207,896	-\$1,678,464	-\$543,403	-\$839,737	455,484	\$591,855	\$1,510	-\$539,258	-\$980,226	-\$1,342,766	\$503,004	\$241,579	-\$466,742	-\$483,727	\$1,131,546	\$252,785	\$332,224	\$1,075,368	\$120,323	
!		(excl. accrued int.)	<u>\$</u>	\$100,130	-\$2,635,277	-\$2,246,808	-\$2,454,704	-44,133,168	-\$4,676,571	-\$5,616,308	-\$5,671,792	-\$5,079,937	-\$731,069	-\$1,270,327	-\$2,230,553	-\$3,573,319	-\$3,070,315	-\$2,828,735	-\$3,295,477	-\$3,789,204	-\$2,657,658	-\$2,404,873	-\$2,072,649	-\$997,281	-\$876,957	
		Accrued Interest	8	8	2	2	2	8	8	2	2	\$279,579	\$355,069	\$387,327	J \$10,553	\$88,319	\$92,315	\$70,735	\$52,477	-\$121,796	-\$27,342	-\$53,127	.\$78,351	-\$107,719	-\$133,043	
	Market Yield	7 3 41 2 5 7 1 5 7 1		5 131%	5,735%	5 655%	5,710%	6.114%	6.260%	6.510%	6.545%	6.415%	6.426%	6 539%		Hypothetical Market	Tield Course (Historical Yield	Cure (nistential for the	no of months	1 a 3vr + 5 months	Substract 10bp -	diff between Libor & CP				
Settlement on		No of days of account interest										118	9	179	27	: 3 3	28	117	147	57	8	25	28	4.48	9	
flee Co as mostly	and + 10 bps	Actual										X 17%	\$ 46%	8.54%	A 10%	5 77 K	* 76 W	8 1 S	8 20%	\$ 58%	8 71%	A 5.7%	F 85%	1 9 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	8 66%	
	AGUS MORN-STA											300	447°C	207C	ROPIN	6.00k	2,000	\$ 20°	200	* 6 8	# 63%	4.00%	•	Ď 4	6.46%	

FIG.

EXHIBIT 3 DETAILS

alculation	of the C	ompensat	ory Hedge	Ratio			/	Compensatory Hero optiaged by dividing by Sond PV of 180	Swap Py of 18B
						4 November 1	N	>	
ip Notional 3	(Congovers)	3		5	6 Bond (nomin	al)	100,000,000		10
elve Rate	100		dj. pay rate		manufaction of the second order	The second secon	ngo PV at Initial	\mathcal{S}	
		Swap	5.175% Swap		No.of	Bond Yield	Bond Yield	+	Compensator
	No.of Months	PV of Profit PV	· -	PV of 1 BP	1	PSYLVEN SEE	<u>6.195%</u>	PV of 1 BP	Hedge Ratio
4-Jan-99		••	esc 997	\$56,887		\$98,806,923 \$98,806,923	\$98,742,910 \$98,742,910	\$64,013	88.9%
	80	\$0 \$0	-\$56,887 -\$56,299	\$56,299	98	\$98,816,190	\$98,752,670	\$63,520	88.6%
feb mar	79	\$0	-\$55,708	\$55,708	97	\$98,825,505	\$98,762,480	\$ 63,025	88.4%
apr	78	\$0	-\$55,114	\$55,114	96	\$98,834,868	\$98,772,342	\$62,526	88.1%
may	77	\$0	-\$54,518	\$ 54,518	95	\$98,844,280	\$98,782,254	\$62,026	87.9%
jun	76	\$0	-\$53,919	\$53,919	94	\$98,853,740	\$98,792,217	\$61,522	87.6% 87.4%
jul	75	\$0	-\$53,318	\$53,318	93	\$98,863,248 \$98,872,806	\$98,802,232 \$98,812,299	\$61,016 \$60,507	87.1%
aug	74	\$0	-\$52,714	\$52,714	92 91	\$98,882,413	\$98,822,417	\$59,995	86.9%
sep	73 70	\$0 \$0	- \$ 52,108 - \$ 51,499	\$52,108 \$51,499	90	\$98,892,069	\$98,832,588	\$59,481	86.6%
oct	72 71	\$0 \$0	-\$51,499 -\$50,887	\$50,887	89	\$98,901,775	\$98,842,811	\$58,964	86.3%
nov	70	\$0	-\$50,273	\$50,273	88	\$98,911,532	\$98,853,087	\$58,444	86.0%
dec an 2000	69	\$0	-\$49,656	\$49,656	87	\$98,921,338	\$98,863,416	\$57,922	85.7%
feb	68	\$0	-\$49,036	\$49,036	86	\$98,931,195	\$98,873,799	\$57,397	85.4%
mar	67	\$0	-\$48,414	\$48,414	85	\$98,941,103	\$98,884,235	\$56,868	85.1% 84.8%
apr	66	\$0	-\$47,789	\$47,789	84	\$98,951,062	\$98,894,725	\$56,337 \$55,804	84.5%
may	65	\$0	-\$47,161	\$47,161	83 82	\$98,961,072 \$98,971,134	\$98,905,269 \$98,915,867	\$55,267	84.2%
jun	64	\$0	-\$46,531	\$46,531	81	\$98,981,248	\$98,926,520	\$54,728	83.9%
jul	63	\$0 \$0	- \$4 5,898 - \$4 5,262	\$45,898 \$45,262	80	\$98,991,414	\$98,937,228	\$54,185	83.5%
aug	62 61	\$0 \$0	-\$44,624	\$44,624	79	\$99,001,632	\$98,947,992	\$53,640	83.2%
sep oct	60	\$ 0	-\$43,983	\$43,983	78	\$99,011,903	\$98,958,811	\$53,092	82,8%
nov	59	\$0	-\$43,338	\$43,338	77	\$99,022,227	\$98,969,686	\$52,541	82.5%
dec	58	\$0	-\$42,692	\$42,692	76	\$99,032,604	\$98,980,617	\$51,987	82.1%
an 2001	57	\$0	-\$42,042	\$42,042	75	\$99,043,034	\$98,991,604	\$51,430	81.7% 81.4%
feb	56	\$0	-\$41,390	\$41,390	74	\$99,053,519	\$99,002,648 \$99,013,749	\$50,870 \$50,308	81.0%
mar	55	\$0	-\$40,735	\$40,735	73	\$99,064,057	\$99,013,149	\$49,742	80.6%
apr	54	\$0	-\$40,077	\$40,077	72	\$99,074,650 \$99,085,297	\$99,036,124	\$49,173	80.2%
may	53	\$0	-\$39,416	\$39,416	71 70	\$99,085,297 \$99,095,999	\$99,047,398	\$48,601	79.7%
jun	52	\$ 0	- \$ 38,752 - \$ 38,085	\$38,752 \$38,085	69	\$99,106,756	\$99,058,730	\$48,026	79.3%
jul	51 50	\$0 \$0	-\$37,416	\$37,416	68	\$99,117,569	\$99,070,121	\$47,448	78.9%
aug	50 49	\$ 0	-\$36,744	\$36,744	67	\$99,128,438	\$99,081,570	\$46,867	78.4%
sep oct	48	\$0	-\$36,069	\$36,069	66	\$99,139,362	\$99,093,079	\$46,283	77.9%
nov	47	\$0	-\$35,391	\$35,391	65	\$99,150,343	\$99,104,647	\$45,696	77.4%
dec	46	\$0	-\$34,710	\$34,710	64	\$99,161,380	\$99,116,275	\$45,105	77.0%
jan 2002	45	\$0	-\$34,026	\$34,026	63	\$99,172,474	\$99,127,962	\$44,512	76.4% 75.9%
feb	44	\$0	-\$33,339	\$33,339	62	\$99,183,626	\$99,139,711 \$99,151,519	\$43,915 \$43,316	75.4%
mar	43	\$0	-\$32,649	\$32,649	61 60	\$99,194,835 \$99,206,102	\$99,163,389	\$42,713	74.8%
apr	42	\$0 *0	-\$31,956 •31,260	\$31,956 \$31,260	59	\$99,217,426	\$99,175,320	\$42,106	74.2%
may	41	\$0 \$0	- \$ 31,260 - \$ 30,561	\$30,561	58	\$99,228,810	\$99,187,313	\$41,497	73.6%
jun int	40 39	\$ 0	-\$29,860	\$29,860	57	\$99,240,251	\$99,199,367	\$40,884	73.0%
jul aug	38	\$0	-\$29,155	\$29,155	56	\$99,251,752	\$99,211,484	\$40,268	72.4%
sep	37	\$0	-\$28,447	\$28,447	55	\$99,263,312	\$99,223,663	\$39,649	71.7%
oct	36	\$0	-\$27,736	\$27,736	54	\$99,274,932	\$99,235,905	\$39,027	71.1%
nov	35	\$0	-\$27,022	\$27,022	53	\$99,286,611	\$99,248,211 \$99,260,580	\$38,401 \$37,772	69.6%
dec	34	\$0	-\$ 26,305	\$26,305	52 51	\$99,298,351 \$99,310,151	\$99,273,012	\$37,139	68.9%
jan	33	\$0	-\$25,585 \$24,862	\$25,585 \$24,862	50	\$99,322,012	\$99,285,509	\$36,503	68.1%
feb	$\frac{32}{34}$	\$ 0	-\$24,862 -\$24,136	\$24,136		\$99,333,935	\$99,298,071	\$35,864	67.3%
mar	31	\$0		1	48	\$99,345,918	\$99,310,697	\$35,221	66.5%
apr	30	\$0	-\$23,406	\$23,406			\$99,323,388	\$34,575	65.6%
may	29	\$0	-\$22,673	\$22,673	47	\$99,357,964		1 1	64.7%
jun	28	\$0	-\$21,938	\$21,938	46	\$99,370,071	\$99,336,145 \$99,348,968	\$33,926 \$33,273	63.7%
jul	27	\$ 0	-\$21,199	\$21,199 \$20,457	45 44	\$99,382,241 \$99,394,474	\$99,361,857	\$33,273	62.7%
aug	26	\$0 •0	-\$20,457 -\$19,711	\$20,457 \$19,711	43	\$99,406,769	\$99,374,813	\$31,957	61.7%
sep	25	\$0	-\$19,711 -\$18,963	\$19,711 \$18,963	43	\$99,419,129	\$99,387,835	\$31,293	60.6%
oct	24	\$0	E 4 D DE 1			433.413.123		* - · · · · ·	

FIG. 9A Swap-Banchmark for Swap#19.xls

EXHIBIT 3 DETAILS

dec	22	\$0	-\$17,456	\$17,456	40	\$99,444,038	\$99,414,082	\$29,956	58.3%
jan	21	\$0	-\$16,698	\$16,698	39	\$99,456,589	\$99,427,308	\$29,282	57.0%
feb	20	\$0	-\$15,937	\$15,937	38	\$99,469,205	\$99,440,601	\$28,604	55.7%
mar	19	\$0	-\$15,172	\$15,172	37	\$99,481,886	\$99,453,963	\$27,923	54.3%
apr	18	\$0	-\$14,404	\$14,404	36	\$99,494,632	\$99,467,394	\$27,238	52.9%
may	17	\$0	-\$13,633	\$13,633	35	\$99,507,444	\$99,480,895	\$26,549	51.3%
jun	16	\$0	-\$12,858	\$12,858	34	\$99,520,322	\$99,494,465	\$25,857	49.7%
jul	15	\$0	-\$12,080	\$12,080	33	\$99,533,266	\$99,508,105	\$25,161	48.0%
aug	14	\$0	-\$11,299	\$11,299	. 32	\$99,546,277	\$99,521,816	\$24,462	46.2%
sep	13	\$0	-\$10,514	\$10,514	31	\$99,559,355	\$99,535,597	\$23,759	44.3%
oct	12	\$0	-\$9,726	\$9,726	30	\$99,572,501	\$99,549,449	\$23,052	42.2%
von	11	\$0	-\$8,934	\$8,934	29	\$99,585,714	\$99,563,373	\$22,341	40.0%
dec	10	\$0	-\$8,139	\$8,139	28	\$99,598,996	\$99,577,369	\$21,626	37.6%
jan	9	\$0	-\$7,341	\$7,341	27	\$99,612,345	\$99,591,438	\$20,908	35.1%
feb	8	\$0	-\$6,539	\$6,539	26	\$99,625,764	\$99,605,578	\$20,186	32.4%
mar	7	\$0	-\$5,734	\$5,734	25	\$99,639,252	\$99,619,792	\$19,460	29.5%
apr	6	\$0	-\$4,926	\$4,926	24	\$99,652,809	\$99,634,079	\$18,730	26.3%
may	5	\$0	-\$4,113	\$4,113	23	\$99,666,436	\$99,648,440	\$17,996	22.9%
jun	4	\$0	-\$3,298	\$3,298	22	\$99,680,134	\$99,662,875	\$17,258	19.1%
jul	3	\$0	-\$2,479	\$2,479	21	\$99,693,902	\$99,677,385	\$16,517	15.0%
aug	2	\$0	-\$1,656	\$1,656	20	\$99,707,741	\$99,691,969	\$15,771	10.5%
sep	1	\$0	-\$830	\$830	19	\$99,721,651	\$99,706,629	\$15,022	5.5%
oct	O	\$0	\$0	\$0	18	\$99,735,633	\$99,721,365	\$14,268	0.0%

- maturing T1X1272005-vs CAT Bentl 6.99%-maturing May 2007 of the Correlation between Swap and Ratio Hedge Bond

	Bond Value	Mithy Chance		129,152	-3.885.065	272,117	-274,603	-2,210,463	-964,940	-1,456,525	-699,973	1,216,906	446,704	-506,935	-1,414,252	-1,972,825	600,266	697,408	-560,644	-1,128,849	2,056,146	187,662	1,363,626	717,703	196,052
	Amort of	Premium		-0 004%	-0.004%	-0 004%	-0.004%	-0.004%	-0 004%	-0 004%	-0 004%	-0 004%	-0 004%	-0 004%	-0.005%	-0.005%	-0 005%	-0 005%	-0.005%	%S00 0-	-0.005%	-0.005%	-0 005%	-0 005%	-0 005%
	Bond Price	If Yield Unchanged	99 445%	99 450%	99 454%	99 458%	99 463%	89.467%	89.471%	%97+66	99.480%	99.485%	99 489%	20 404%	88 488%	99 503%	99 507%	89 512%	99 516%	99 521%	99 526%	99 530%	99 535%	99 540%	99 545%
	Effective	Swap Yield	ğ	6 0650%	6 6850%	6 6450%	6 6950%	7 0750%	7.2550%	7 5250%	7 6650%	7 4550%	7.3850%	7.5050%	7 7850%	8.1850%	8.0850%	7.9650%	8.0950%	8.3450%	7 9450%	7 9250%	7 6650%	7.5350%	7.5085%
7	Constant Diff.	Libor vs CP Swap	0 1000%	0 1000%	0.1000%	0 1000%	0 1000%	0 1000%	0.1000%	0.1000%	0 1000%	0 1000%	0.1000%	0 1000%	0 1000%	0 1000%	0 1000%	0 1000%	0 1000%	0 1000%	0 1000%	0 1000%	0.1000%	0 1000%	0 1000%
	Constant	Yield Differential Lii	0 6350%	0 6350%	0.8350%	0.8350%	0.8350%	0 8350%	0 8350%	0.8350%	0.8350%	0 8350%	0 8350%	0 8350%	0 8350%	0 8350%	0 8350%	0 8350%	0 8350%	0 8350%	0 8350%	0 8350%	0 8350%	0 8350%	0 8350%
	Actual Libor	Swap Yield Y	\$ 3500%	\$ 3300%	\$ 9500%	5.9100%	5.9600%	6.3400%	6.5200%	6.7900%	6 9300%	6.7200%	6.6500%	8 7700%	7 0500%	7 4500%	7 3500%	7.2300%	7 3600%	7 6100%	7.2100%	7 1900%	6 9300%	8 8000%	6 7745%
	Computed	Bond Value	99 4455%	99 5789%	95 6981%	95 9746%	95 7043%	93 4962%	92.5176%	91.0655%	90 3700%	91 5813%	92 0425%	91 4600%	90 0503%	66 0620%	88 6868%	89 3888%	88 8328%	87 7086%	89 7694%	89 98 17%	91 3301%	92 0525%	92.2553%
	No.of	Months	8	8	8	76	%	%	ā	æ	25	5	8	2	2	87	28	8 2	2	23	25	5	28	79	92
	Monthly Change	Adj. MTM		-\$68,239	-\$3,408,708	\$357,629	-\$259,530	-\$1,990,602	-\$746,465	-\$1,216,895	-\$355,584	\$882,891	\$296,725	-\$495,628	-\$1,286,120	-\$1,799,835	-\$288,265	\$428,607	-\$589.586	-\$762,874	\$1,785,803	\$182,683	800,979	\$720,165	\$76,061
<u>!</u>	Adjusted MTM	(excl. accrued int.)	\$	-\$68,239	-\$3,476,946	-\$3,119,318	-\$3,378,848	-\$5,369,450	-\$6,115,915	-\$7,332,810	-\$7,668,394	-\$6,795,503	-\$6,498,778	-\$6,994,406	-\$8,280,526	-\$10,080,361	-\$4,067,186	-\$3,638,579	-\$4,238,174	-\$5,001,049	-\$3,215,246	-\$3,032,563	-\$2,051,584	-\$1,331,419	-\$1,255,358
		Accused Interest (ex	2	S	2	2	8	ន	\$	2	2	2	2	3	3	2	\$23,671	27.92	\$59,068	-\$29,589	-\$86,959	-\$67,973	-\$93,151	-\$115,315	-\$125,645
Martiel Yield		Acc		5.177%	5 795%	5.735%	5.780%	6.181%	6.340%	6.600%	6.690%	6.521%	6.475%	6.500%	6.883%	7.316%		Hyothetical Market Yield	Source (Historical Yield	curve) - adjusted for the	no of months	le 3yr + 5 months.	Substract 10bp -	diff.between Libor & CP	
Settlement on	No of days of	accrued interest		5+21	2+20	5+19	5+18	5+17	5+16	5+15	5+14	5+13	5+12	5+11	5 +0	0+6 0+6	5				85			_	79
Using CP at month and + 18 bps	Actual	floating rate															5.94%	6.11%	6.20%	6.58%	6.71%	6.67%	6.65%	8.66%	6.86%
Actual month-and CP Rate																	5.76%	5.93%	8.02%	6.40%	6.53%	6.49%	8.47%	6.48%	6.48%

Swan Belieffnark Tor Swap#44 xls

63

62

61

\$100,426,596

\$100,420,888

43.3%

42.2%

\$100,383,411

\$100,378,283

\$43,185

\$42,605

\$19,419

\$18,692

\$17,962

-\$19,419

-\$18,692

-\$17.962

\$0

\$0

\$0

25

24

23

្វែបក

jul

aug

EXHIBIT 4 DETAILS

4									
sep	22	\$0	-\$17,227	\$17,227	60	\$100,415,146	\$100,373,123	\$42,023	41.0%
oct	21	\$0	-\$16,488	\$16,488	59	\$100,409,370	\$100,367,933	\$41,437	39.8%
nov	20	\$0	-\$15,745	\$15,745	58	\$100,403,560	\$100,362,712	\$40,847	38.5%
dec	19	\$0	-\$14,998	\$14,998	57	\$100,397,714	\$100,357,460	\$40,254	37.3%
jan	18	\$0	-\$14,247	\$14,247	56	\$100,391,835	\$100,352,177	\$39,658	35.9%
feb	17	\$0	-\$13,491	\$13,491	55	\$100,385,920	\$100,346,862	\$39,058	34.5%
mar	16	\$0	-\$12,732	\$12,732	54	\$100,379,969	\$100,341,515	\$38,454	33.1%
apr	15	SO	-\$11,968	\$11,968	53	\$100,373,984	\$100,336,136	\$37,847	31.6%
may	14	\$0	-\$11,201	\$11,201	52	\$100,367,962	\$100,330,725	\$37,237	30.1%
jun	13	\$0	-\$10,429	\$10,429	51	\$100,361,905	\$100,325,282	\$36,623	28.5%
jul	12	\$0	-\$9,653	\$9,653	50	\$100,355,812	\$100,319,807	\$36,005	26.8%
aug	11	\$0	-\$8,872	\$8,872	49	\$100,349,682	\$100,314,299	\$35,383	25.1%
sep	10	\$0	-\$8,088	\$8,088	48	\$100,343,516	\$100,308,757	\$34,758	23.3%
oct	9	\$0	-\$7,299	\$7,299	47	\$100,337,313	\$100,303,183	\$34,130	21.4%
nov	8	\$ 0	-\$6,505	\$6,505	46	\$100,331,073	\$100,297,576	\$33,497	19.4%
dec	7	\$0	-\$5,708	\$5,708	45	\$100,324,796	\$100,291,935	\$32,861	17.4%
jan	6	\$0	-\$4,905	\$4,905	44	\$100,318,481	\$100,286,260	\$32,221	15.2%
feb	5	\$0	-\$4,099	\$4,099	43	\$100,312,129	\$100,280,552	\$31,577	
mar	4	so	-\$3,288	\$3,288	42	\$100,305,739	\$100,274,810	\$30,930	13.0% 10.6%
apr	3	\$0	-\$2,473	\$2,473	41	\$100,299,311	\$100,269,033	\$30,278	3 1
may	2	\$0	-\$1,653	\$1,653	40	\$100,292,845	\$100,263,222	\$29,623	8.2%
jun	1	\$0	-\$829	\$829	39	\$100,286,340	\$100,257,376		5.6%
jut	Ó	\$0	\$0	\$0	38	\$100,279,796		\$28,964	2.9%
I lai	•	→	*0	20	30	\$100,213,130	\$100,251,495	\$28,301	0.0%

TO IN

Signard##10-m34cmg /rf5/20be/v5 CAL-Botto 7-25% maturing Bond 1-1-12 1-12		Bond Value Mthly Change 600,463 -1,503,627 -1,273,286 -2,320,774 636,938 1,027,407 -1,501,434 2,472,573 104,775 1,736,237 624,274	261,692
Calculation of the Correlation between Swap and Ratio Hedge Bond Headman		Amort of Premium 0.000% 0.008% 0.008% 0.008% 0.008% 0.009% 0.009% 0.009% 0.009%	%800.0
Calculation of the Correlation between Swap and Ratio Hedge Bond Headman		Bond Price 101.425% 101.425% 101.425% 101.409% 101.392% 101.392% 101.375% 101.375% 101.375% 101.375% 101.375% 101.32% 101.349% 101.349% 101.349%	101 314%
Calculation of the Correlation between Swap and Ratio Hedge Bond He		\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	7 0510%
Calculation of the Correlation between Swap and Ratio Hedge Bond 16 17 19 19 20 21 19 20 21 21 22 22 23 23 23 24 23 23	2	onstant Diff. 0.1000% 0.1000% 0.1000% 0.1000% 0.1000% 0.1000% 0.1000% 0.1000% 0.1000% 0.1000%	0.1000%
Calculation of the Correlation between Swap and Ratio Hedge Bond 16 19 19 19 19 19 19 19	25		0.3210%
SG SW4DFT9—maturing 7/15/20be-vs CAL-Bond 7-25% maturing deptember 2009 Calculation of the Correlation between Swap and Ratio Hedge Bond Calculation of the Correlation between Swap and Ratio Hedge Bond Calculation of the Correlation between Swap and Ratio Hedge Bond Calculation of the Correlation between Swap and Ratio Hedge Bond Calculation of the Correlation between Swap and Ratio Hedge Bond Calculation of the Correlation between Swap and Ratio Hedge Bond Calculation of the Correlation between Swap and Ratio Hedge Bond Calculation of the Correlation between Swap and Ratio Hedge Bond Calculation of the Correlation between Swap and Ratio Hedge Bond Calculation of the Correlation between Swap and Ratio Hedge Bond Calculation of the Correlation Partial Ratio Hedge Bond Calculation Partial R	7.00 M	ibor 8300% 8300% 1.7467% 1406% 1.856% 1.3939% 1.3773% 1.2773% 1.2365% 1.2532% 1.2532%	6.8300%
Second S	J. J	2	101.0556% 101.3145%
12 Calculation of the Correlation between Swap and Ratio Hedge Bond 16 Calculation of the Correlation between Swap and Ratio Hedge Bond 16 Calculation of the Correlation between Swap and Ratio Hedge Bond 16 Calculation of the Correlation between Swap and Ratio Hedge Bond 16 Calculation of the Correlation between Swap and Ratio Hedge Bond 16 Calculation of the Correlation between Swap and Ratio Hedge Bond 16 Calculation of the Correlation between Swap and Ratio Hedge Bond 16 Calculation of the Correlation between Swap and Ratio Hedge Bond 16 Calculation of the Correlation between Swap and Ratio Hedge Bond 16 Calculation of the Correlation Calculation Calculat	d (company) b	No.of 120 120 119 116 117 110 110	901 701
Calculation of the Correlation between Swap and Ratio Hedge Bond Calculation of the Correlation between Swap and Ratio Hedge Bond 14 14 14 14 14 14 14 1		s333,504 \$333,504 \$1,559,811 \$1,559,811 \$2,094,372 \$537,335 \$502,078 \$537,335 \$502,078 \$1,165,891 \$1,963,578 \$13,760 \$1,215,951	\$194,508
Calculation of the Correlation between Swap and Ratio Hedge Bond Calculation of the Correlation between Swap and Ratio Hedge Bond Calculation of the Correlation between Swap and Ratio Hedge Bond No.of (Per Counterparty) No.of (Per Counterparty) No.of (Per Counterparty) Swetchards on Actual monthmed (Lawg CP at mooth Actual mooth Actual monthmed (Lawg CP at mooth Actual mooth Act	(E) #	0040000440	-\$480,605 -\$1,974,854
No.of Months 89 82 80 77 76 77 76 75 77 75 75 75 75 75 75 75 75 75 75 75 75 75 7	ing-September 2		\$0 -\$125,224
No.of Months 89 82 80 77 76 77 76 75 77 75 75 75 75 75 75 75 75 75 75 75 75 75 7	25% maturition Hedge B	6.578% 6.578% 6.527% 6.923% 7.238% 7.124% 7.124% 7.124% 7.09% 7.00% 6.822%	6.677%
No.of Months 89 82 80 77 76 77 76 75 77 75 75 75 75 75 75 75 75 75 75 75 75 75 7	Swap and Ra	No of days of secret interest	108
No.of Months 89 82 80 77 76 77 76 75 77 75 75 75 75 75 75 75 75 75 75 75 75 75 7	15/2096 vs (ion between the sense of the sen	Actual Actual Goating rate	4999
No.of Months 89 82 80 77 76 77 76 75 77 75 75 75 75 75 75 75 75 75 75 75 75 75 7	matufing 77 the Correlat	CP Reie	6.48%
No.of Months 89 82 80 77 76 77 76 75 77 75 75 75 75 75 75 75 75 75 75 75 75 75 7	Sawap#18-		\$480,605 \$2,100,078
10-Sep-99 30-Sep-99 30-Sep-99 30-Sep-99 30-Sep-99 30-Sep-99 30-Sep-99 30-Sep-99	S S S S S S S S S S S S S S S S S S S		C 0. 89
•	# E	30-Sep-99 30-Sep-99 dec dec	sep -2,169,362

FIG. 13
Swap-Benchmark for Swapk(18 x1s

	2		76 20/	27.76	67.1%	%6.70	%0.10	%7.00	00.2%	89.0%	03.6%	97.07	92.0%	%n'da	94.1%
	Square of Unexplained Dey (ineffect.portion)	C	15 732 832 515	298 687 349 311	353 285 391 893	117 276 296 651	3 432 549 673	27 811 094 331	201 837 756	2.755.374.621	19 217 411 768	18 713 870 414	2 8 2 4 5 7 8 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	4,02,1,01,0,004	682,853
28-	Square of Total Deviation SSI	0	63,478,928,851	504.676.712.291	2.076.897.321.496	4,269,888,798,888	5,705,816,121,978	6,891,153,721,126	6,931,508,772,406	7,419,392,361,062	12,899,803,490,559	13,091,439,955,855	14.979.915.613.565	15 564 470 116 244	15,614,017,438,151
	Ineffective Portion of Swep MTM (26.27)	0	125,431	-546,523	594,378	342,456	-58,588	166,767	-14,207	52,492	-138,627	-136,799	53.118	-251 971	-826
- 77	Y Swap MTM Mthly Change	80	\$333,504	-\$598,060	-\$1,559,611	-\$2,094,372	\$537,335	\$602,078	-\$634,859	-\$1,165,891	\$1,963,578	\$213,760	\$1,215,951	\$705,980	\$194,508
Broke Pr. Woodland Lessings and White States of the States of Stat	averg. x Life-to-date Hedged Bond MTM mthly change	0	229,467	-228,549	-412,720	-680,559	-487,342	-307,886	-350,534	-435,297	-209,272	-183,251	-62,224	-22,514	-7,071
26	X Hedged Bond MTM mthly change (24 * 25)	0	458,935	-1,144,583	-965,233	-1,751,915	478,747	768,845	-649,066	-1,113,399	1,824,951	76,961	1,269,070	454,010	193,681
-25	Compensatory Hedge Ratio	%2 92	76.4%	76 1%	75 8%	75 5%	75.2%	74.8%	74.5%	74.2%	73.8%	73 5%	73.1%	72.7%	72.4%
24	Bond Value Mthly Change	\$0.00	\$600,462.93	-\$1,503,626 62	-\$1,273,266 40	-\$2,320,774.27	\$636,938.08	\$1,027,406 66	-\$871,257.52	-\$1,501,434.31	\$2,472,573.07	\$104,775.02	\$1,736,237.04	\$624,273.86	\$267,692.47
Exhibit 2		30-Sep-99			dec			mar			unſ			des	

FIG. 14

Swap Denchmark for Swap#18 xis

